



SEQUENCE LISTING

<110> DELBAC, FREDERIC
DANCHIN, ANTOINE
VIVARES, CHRISTIAN

<120> MICROSPORIDIAN POLAR TUBE PROTEINS, NUCLEIC ACIDS
CODING FOR THESE PROTEINS AND THEIR APPLICATIONS

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<140> 09/755,456

<141> 2001-01-05

<150> PCT/FR99/01630

<151> 1999-07-06

<150> FR 98/08692

<151> 1998-07-07

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<170> PatentIn Ver. 2.1

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Cys Cys Thr Pro Pro Ile Thr Asn Pro Val Met Pro Thr Pro Met Gly	
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Ile Leu Ala Lys Ile Ile Asp Lys Ala Val Asn Met Leu Lys Tyr Arg
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165 170 175

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 Gly Lys Thr Ser Glu Asn Glu Thr Ser Pro Ser Ala Pro Ala Glu Asp
 85 90 95
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 Thr Thr Ser Gly Thr Thr Pro Gly Ser Gly Pro Cys Glu Thr Pro Glu
 115 120 125

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 145 150 155 160
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 Ala Thr Leu Cys Gln Gly Gln Ala Met Pro Ser Thr Pro Gly Gln Gln
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Met Leu Leu Leu Leu Ala Ile Thr Ala Val Val Ser Ala Thr Met Val
 1 5 10 15

His Pro Ser Ala Val Val Pro Gln Pro Ala Ala Pro Leu His Val Val
 20 25 30

Pro Pro Gln Gln Gln Met Gly Met Val Asn Gly Cys Thr Ser Lys Lys
 35 40 45

Leu Glu Gly Ala Glu Ile Met Arg Arg Asn Met Ile Glu Cys Gln Lys
 50 55 60

Arg Ser Ser Glu Ala Thr Lys Ala Met Ile Glu Arg Ala Asn Glu Lys
 65 70 75 80

Ala Val Glu Ser Phe Asn Lys Glu Val Ser Lys Gly Pro Ser Gln Lys
 85 90 95

Asp Gly Gly Gln Cys Ile Glu Lys Ala Val Gln Gly Thr Asp Arg Cys
 100 105 110

Ile Leu Ala Gly Ile Ile Asp Lys Ala Val Asn Lys Arg Lys Tyr Arg
 115 120 125

Ile Ser Asp Val Glu Asn Ser Thr Ser Leu Tyr Arg Gly Asp Lys Leu
 130 135 140

Ile Ala Leu Ile Val Asn Val Asp Tyr Gly Leu Gln Pro Ile Thr Lys
 145 150 155 160

Pro Lys Lys Lys Lys Ser Lys Ile Met Ala Asn Leu Pro Gln Pro Lys
 165 170 175

Arg Glu Met Tyr Phe Asn Gln Ile Gly Gln Leu Val Gly Ala Arg Gly
 180 185 190

Thr Phe Pro Gln Glu Asn Lys Glu Asp Cys Lys Pro Cys Glu Gly Pro
 195 200 205

Lys Lys Thr Val Glu Thr Thr Ser Glu Lys Cys Asn Leu Gly Cys Glu
 210 215 220

Leu Lys Gly Thr Ser Ala Leu Ile Ser Lys Ala Ile Gln Lys Lys Glu
 225 230 235 240

Val Lys Asp Thr Lys Glu Gly Glu Lys Ser Ala Ser Gln Asp Ser Asp
 245 250 255

Gly Glu Gly Thr Ala Glu Asp Ala Glu Val Gln Gln Pro Ser Ala Asp
 260 265 270

Gly Glu Gly Leu Glu
 275

<210> 8

<211> 371

<212> PRT

<213> Encephalitozoon intestinalis

<400> 8

Met Lys Gly Ile Ser Lys Val Leu Ser Ala Ser Ile Val Leu Met Lys
 1 5 10 15

Leu Lys Gly Val Tyr Ser Thr Thr Val Leu Cys Gly Asp Ser Thr Gln
 20 25 30

Gly Leu Gln Gly Thr Thr Gln Pro Ser Tyr Val Leu Val Pro Ser Ala
 35 40 45

Pro Glu Thr Ile Ala Asn Cys Gly Tyr Ser Pro Gln Asn Met Tyr Val
 50 55 60

Pro Ser Thr Pro Thr Thr Met Pro Ser Thr Val Pro Gly Thr Thr Gly
 65 70 75 80

Glu Ser Glu Thr Pro Thr Ser Pro Thr Ser Ser Pro Thr Glu Asp Val
 85 90 95

Gly Thr Cys Lys Ile Ala Val Val Lys His Cys Asp Ala Pro Gly Thr
 100 105 110

Ser Ser Thr Pro Cys Glu Pro Glu Gln Thr Leu Ala Pro Ser Gln Pro
 115 120 125

Val Ala Ala Thr Ile Ala Thr Pro Leu Val Val Ala Ser Val Gln Thr
 130 135 140

Pro Gln Ala Ala Val Thr Ile Leu Thr Pro Lys Ala Val Ser Ala Gln
 145 150 155 160

Pro Ala Thr Ile Ile Ser Pro Phe Asn Gln Ala Pro Gly Tyr Tyr Asn
 165 170 175

Ser Ala Ile Pro Gly Gln Ile Leu Thr Gly Asn Val Leu Ser Pro Ser
 180 185 190

Ala Ser Ser Cys Gln Val Val Pro Gly Thr Thr Gly Ser Ser Thr Pro
 195 200 205

Gln Gln Leu Pro Gly Ala Val Ser Ser Gly Thr Ile Pro Cys Gln Ile
 210 215 220

Val Gln Gly Thr Gln Ser Ser Gly Asn Thr Pro Gly Gln Gln Phe Leu
 225 230 235 240

Pro Gly Ile Val Pro Val Gly Ser Leu Gln Pro Asp Gln Ala Thr Ser
 245 250 255

Gly Thr Pro Thr Pro Ser Val Ser Gln Ser Gln Ser Gly Gln Gln Cys
 260 265 270

Cys Cys Thr Pro Pro Ile Thr Asn Pro Val Met Pro Thr Pro Met Gly
 275 280 285

Ile Ser Ser Asn Gly Tyr Pro Ser Ser Thr Ala Tyr Ala Pro Thr Leu
 290 295 300

Gly Gln Leu Gly Pro Cys Ile Asp Thr Gln Lys Ser Thr Ser Ser Cys
 305 310 315 320

Glu Pro Lys Glu Lys Pro Val Ala Gln Tyr Gly Met Glu Ala Cys Ala
 325 330 335

Ala Pro Thr Pro Thr Ala Val Leu Gly Asn Ala Glu Tyr Leu Leu Ser
 340 345 350

Pro Gly Met Tyr Asn Ser Leu Asn Ser Pro Cys Asn Ala Cys Cys Gln
 355 360 365

Gln Gln Cys
 370

<210> 9
 <211> 275
 <212> PRT
 <213> Encephalitozoon intestinalis

<400> 9
 Met Leu Leu Leu Leu Ser Ala Val Ala Phe Val Ser Ala Thr Ala Val
 1 5 10 15

Gln Ser Gly Val Val Ser Gln Pro Thr Thr Pro Ile Pro Ile Leu Pro
 20 25 30

Gly Gln Pro Met Gly Gly Met Ala Asn Gly Cys Thr Asn Lys Lys Leu
 35 40 45

Asp Gly Val Glu Ile Met Arg Arg Asn Met Val Glu Cys Gln Lys Arg
 50 55 60

Asn Ala Glu Ala Thr Lys Ala Met Val Glu Arg Ala Asn Glu Lys Ala
 65 70 75 80

Val Glu Thr Phe Asn Lys Glu Val Ser Lys Gly Pro Gln Lys Glu Ser
 85 90 95

Gly Gln Cys Ile Glu Lys Ala Val Gln Gly Thr Asp Arg Cys Ile Leu
 100 105 110

Ala Gly Ile Ile Asp Lys Ala Val Asn Lys Arg Lys Tyr Arg Ile Ser
 115 120 125

Asp Val Glu Asn Ser Thr Ser Leu Tyr Arg Gly Asp Lys Leu Ile Ala
 130 135 140

Leu Ile Val Asn Val Asp Tyr Gly Leu Gln Pro Ile Ile Lys Pro Lys
 145 150 155 160

Lys Lys Lys Ser Lys Ile Met Ala Asn Leu Pro Gln Pro Lys Arg Glu
 165 170 175

Met Tyr Phe Asn Gln Ile Gly Gln Leu Val Gly Ala Lys Gly Thr Phe
180 185 190

Pro Gln Asp Asn Lys Asp Glu Cys Lys Pro Cys Glu Pro Lys Lys Thr
195 200 205

Val Glu Thr Ala Ser Glu Arg Cys Asn Leu Gly Cys Glu Leu Lys Gly
210 215 220

Thr Ser Ala Leu Ile Ser Lys Ala Ile Gln Lys Lys Glu Ile Lys Glu
225 230 235 240

Ser Pro Lys^S Glu Gly Asp Arg Asn Thr Thr Gln Glu Tyr Asp Gly Glu
245 250 255

Gly Ser Ala Glu Asp Ala Glu Gly Gln Gln Pro Ser Ala Asp Gly Glu
260 265 270

Gly Leu Glu
275

<210> 10
<211> 272
<212> PRT
<213> Encephalitozoon hellem

<400> 10
Met Leu Leu Leu Phe Thr Val Val Thr Leu Val Ser Ala Ala Gln Val
1 5 10 15

Ala Pro Val Thr Pro Gln Ala Ala Val Pro Thr Gln Phe Leu Pro Gly
20 25 30

Ala Gln Gln Lys Ile Gly Gly Val Asp Asn Arg Cys Ala Asn Lys Gln
35 40 45

Val Glu Gly Val Gln Ile Phe Gln Gly Asp Met Ala Asp Cys Pro Lys
50 55 60

Arg Asn Ser Glu Ala Ala Asn Ala Met Val Gln Arg Ala Lys Gln Lys
65 70 75 80

Ala Leu Glu Ile Tyr Asn Lys Glu Ile Ser Lys Gly Pro Thr Pro Lys
85 90 95

Asp Ser Gly Gln Cys Ile Glu Arg Ala Val Gln Gly Thr Asp Arg Cys
100 105 110

Ile Leu Ala Lys Ile Ile Asp Lys Ala Val Asn Met Leu Lys Tyr Arg
115 120 125

Ile Ser Lys Val Gly Asn Ala Thr Ala Leu Phe Arg Gly Asn Lys Leu
130 135 140

Ile	Ser	Leu	Ile	Leu	Asn	Val	Asp	Tyr	Gly	Leu	Lys	Pro	Phe	Phe	Thr
145					150					155					160
Val	Val	Lys	Lys	Lys	Thr	Lys	Arg	Val	Phe	Pro	Gln	Gly	Asp	Glu	Leu
				165					170					175	
Asn	Phe	Asn	Gly	Ile	Gly	Gln	Leu	Ile	Gly	Val	Lys	Gly	Thr	Phe	Pro
			180					185					190		
Gln	Asp	Asn	Asn	Asp	Glu	Cys	Lys	Pro	Cys	Asp	Ser	Pro	Lys	Lys	Thr
		195					200					205			
Val	Glu	Thr	Val	Ala	Glu	Glu	Cys	Asn	Leu	Gly	Cys	Gln	Leu	Lys	Gly
	210					215					220				
Thr	Pro	Gly	Leu	Ile	Ser	Arg	Ala	Ile	Gln	Lys	Lys	Glu	Val	Lys	Glu
225					230					235					240
Ser	Ser	Lys	Asp	Gly	Glu	Lys	Ser	Ser	Thr	Gln	Asn	Gly	Glu	Gly	Thr
				245					250					255	
Thr	Asp	Asp	Glu	Asp	Gly	Gln	Gln	Ser	Pro	Asp	Gly	Asn	Gly	Pro	Glu
			260					265					270		